

## Defining and Quantifying Rural Congestion

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Congestion on roads is usually associated with urban areas, but rural roads also have a fair share of congested segments and congested periods. Increased travel time, unreliable travel time, increased fuel consumption, negative environmental impacts, and an increase in accident frequency, rate, and severity are some of the consequences of congestion.

Even though there is a general perception that congestion on rural roads in Idaho has been increasing in recent years, the Idaho Transportation Department (ITD) does not believe that there is a clear-cut method to define and quantify rural congestion. Not only is it important to better understand and define rural congestion before mitigation measures can be suggested but such a definition will also help in prioritizing projects designed to mitigate the effects of congestion. To that end, ITD contracted with Boise State University (BSU) to develop a methodology to define and quantify rural congestion.

As a part of the contract, BSU researched and reviewed current practices used to identify and measure congestion as reported in the literature, interviewed state transportation department personnel within Idaho and neighboring states to learn about current practices, visited road segments in Idaho that were identified by ITD District Traffic Engineers as being congested, and investigated accident records and volume trends to come up with a short list of road segments distributed throughout the state for further study. Bluetooth readers were then installed at each end of the identified road segments and travel time data were collected. The Bluetooth data were supplemented by automated traffic recorder data and, in some cases, by data from road tubes.

BSU explored the use of different methods to analyze the data and summarized the results to fulfill the research objectives. The findings from the project will be presented in this session along with suggestions and directions for further research on rural congestion.